

MARINE REVIEW.

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No. 24.

Single Order for Fourteen Ships.

DETAILS REGARDING CONTRACTS JUST PLACED BY PICKANDS, MATHER & CO. OF CLEVELAND—TWELVE ARE FOR MR. JOHN D. ROCKEFELLER—WHERE THE CONTRACTS HAVE BEEN PLACED.

As in all other matters of special interest to readers of the REVIEW, our first aim in giving out information regarding Mr. John D. Rockefeller's dealings with lake ship builders through the firm of Pickands, Mather & Co., Cleveland, has been to present only facts. We have been fortunate in having the confidence of the principals in Cleveland, as far as a newspaper can have the confidence of a business concern in such matters, and all dispatches sent out through the news associations and credited to the REVIEW have contained information from first hands. The brief announcement of contracts covering ten vessels in last week's issue is now supplemented by a statement from Mr. H. G. Dalton of the firm of Pickands, Mather & Co., regarding the dealings of that firm during several days past with the lake ship builders.

The contracts, some of which were not closed until Monday of this

consorts; steamer to be 408 feet keel, 48 feet beam and 28 feet depth; consorts to be duplicates, 354 feet keel, 44 feet beam and 28 feet depth.

Chicago Ship Building Co.—One steamer and three consorts; steamer to be 400 feet keel, 48 feet beam and 28 feet depth; consorts to be duplicates, 352 feet keel, 44 feet beam and 26 feet depth.

American Steel Barge Co., West Superior, Wis.—One steamer and one consort, both of whaleback type; steamer to be 404 feet over all, 48 feet beam and 27 feet depth; consort to be 376 feet over all, 46 feet beam and 27 feet depth. Over-all lengths are given in this case, on account of the peculiar form of construction in the whaleback type of vessel.

This big order to the ship builders does not involve any radical departure from the type of general freight-carrying vessel that has developed on the lakes during the past ten or twelve years, in which steel has gradually replaced wood for hulls. There will be no water tube boilers and nothing that in any way approaches an experiment in the ships. In the matter of power, however, there is a marked increase in the steamers, each of which will develop about 2,000 horse power. In



Button! Button! Who has the Button?

MR. H. G. DALTON'S GAME WITH LAKE SHIP BUILDERS.

week, now cover in all fourteen steel freight vessels, eight of which are steamers and six tow barges. Twelve are for Mr. Rockefeller and two, a steamer and tow barge, for the Minnesota Steamship Co. The exact amount of the money consideration involved in this single order is, of course, not given out but it is approximately \$3,000,000. Each of these fourteen ships is practically guaranteed to carry 4,000 gross tons on 16 feet draft. Some of them will certainly carry more than that amount, so that on a single trip of the fleet 56,000 gross tons of ore will be moved from Lake Superior, and a conservative estimate of the capacity of the fleet for a full season in the Lake Superior trade is 1,200,000 gross tons. All of the vessels excepting the steamer to be built by the Cleveland Ship Building Co., which will be delayed on account of a large amount of work on hand in the yard and engine works of that company, are to go into commission between the opening of navigation and Aug. 15, next. The contracts are divided among six ship building concerns as follows:

Cleveland Ship Building Co., Cleveland—One steamer of 406 feet keel, 48 feet beam and 28 feet depth.

Globe Iron Works Co., Cleveland—Two steamers, each 412 feet keel, 48 feet beam and 28 feet depth.

Detroit Dry Dock Co., Detroit—Two steamers each 418 feet keel, 45½ feet beam and 28 feet depth.

F. W. Wheeler & Co., West Bay City, Mich.—One steamer and two

fact it would seem, although not so announced, that there is first a guarantee of 4,000 gross tons on Lake Superior draft in all of the vessels, and second an assurance of 2,000 horse power in the steamers, which will fit all of them for fast towing. This amount of power is 20 to 25 per cent. greater than is applied to modern lake freight steamers that are not intended to tow consorts. With a view to deeper draft upon the completion of government works now under way throughout the lakes, and for other reasons, these vessels will all be very much heavier than has been the rule in general practice on the lakes.

It is now quite probable that the Flint & Pere Marquette Railway Co. will be called upon to pay a good round price for the car ferry upon which they have been figuring for some time past, if work on the vessel is to begin immediately. Notwithstanding three orders for Rockefeller vessels just taken by F. W. Wheeler & Co., it is understood that that firm still has room, on account of improvements recently made in its yard, to undertake the building of the car ferry.

An effort is again being made to secure an appropriation from congress for the establishment of a wind signal display station on South Manitou island, Lake Michigan. A bill with that end in view was among the first to be introduced when congress opened a few days ago.

Limit of Ship Dimensions for St. Lawrence Canals.

The REVIEW is often asked for information regarding the size of vessel that can be passed from the lakes through the Welland and St. Lawrence canals to the seaboard. We had an inquiry of this kind a few days ago from the publishers of the United States Standard Register of Shipping, New York. The answer which follows, will probably prove interesting to others:

"Answering your favor of Dec. 5, we desire to say to you that the steel steam yacht Comanche, owned by Mr. H. M. Hanna of Cleveland, furnishes the best example of size of vessel that can be conveniently taken from the lakes through to the seaboard. She has gone through on several occasions, drawing 9 feet of water but requiring some little pontooning at that draft. This vessel is 185 feet over all, 165 feet keel, 25 feet beam and 14 feet 3 inches depth. In some of the locks there were just 2 inches to spare in her length. You know of course, that the canals below Lake Ontario are very much smaller than the Welland. The Ogdensburg Transit Co's steamer McVittie represents the largest type of vessel that can be passed through the Welland canal. This vessel, as well as several others of her class in the same line, is 240 feet keel, 254 feet over all and 42 feet beam. The draft of water in the Welland canal during the past season has been 13½ feet. If you will refer to the book "Around the Lakes," which the REVIEW published recently for the Detroit Dry Dock Co. and of which we think you have a copy, you will find on page 228 of that book considerable information on the subject to which you refer."

Legislation Proposed by the Engineers.

Officers of the Marine Engineers' Beneficial Association are taking steps to overcome, if possible, in the congress now in session the ruling of the treasury department that engineers are not officers of steam vessels. Ever since Secretary Foster, in the case of the American line steamers Paris and New York, turned down the engineers by permitting Englishmen, who had applied for citizenship in this country, to remain in charge of the machinery of these vessels, the national organization of engineers has had this subject under discussion. A pamphlet directed to members of congress and just issued from the office of the national secretary, Thomas F. Dowd of Chicago, recites features of the present steamboat laws which favor alien engineers and calls for the following changes in section 4131 revised statutes:

"Sec. 4131. Vessels registered pursuant to law * * * shall continue to be wholly owned by citizens and to be commanded by a citizen of the United States. And all the officers of vessels of the United States shall in all cases be citizens of the United States. The word officer shall include the chief engineer and assistant engineers on vessels propelled in whole or in part by steam; and no person shall be held to be a citizen of the United States who is not either a native-born citizen, or whose naturalization as a citizen shall not have been fully completed. And be it further provided

"That all licenses issued to officers of steam vessels shall be graded in accordance with the laws governing the steam vessel inspection service, and shall not be subject to renewal, except upon written application by the holder of a license for a license of the next higher grade, which application shall not be granted unless the applicant shall have successfully passed an examination before a regularly authorized board of examiners, as to his qualifications for an officer of the advanced grade, nor until he shall have held his present license at least twelve months prior to his application for advancement; and shall not be subject to suspension or revocation except upon charges duly preferred by writing, made under affidavit to the supervising inspector-general and sustained by him, after a fair and impartial investigation of the charges, at which time the accused shall have the benefit of council, or shall be allowed to testify in his own defense, or both, as the accused may elect; and in no case shall the accused be deprived of the use of his license, until the charges against him are fully sustained and he is proven incompetent. And be it further provided

"That any person without the jurisdiction of the laws governing the steam vessel inspection service, who holds a license as an officer of vessels of the United States, may have his present issue of license renewed by making oath before a United States government consul, or other authorized agent of the United States, that he is the legal possessor of such license, and forwarding said license together with the aforesaid oath or deposition, to the board of local inspectors who issued said license, who shall return him his license by mail to the address furnished by the applicant for renewal; provided, however, that this clause shall apply to those who are constantly engaged in a service that does not admit of them appearing in person before a board of local inspectors, and whose licenses have lapsed or expired because of this condition. And be it further provided

"That all persons who accept license as an engineer of steam vessels shall in case of war or other alarming emergency be subject to draft into the navy of the United States, to act as engineer under such rules as may

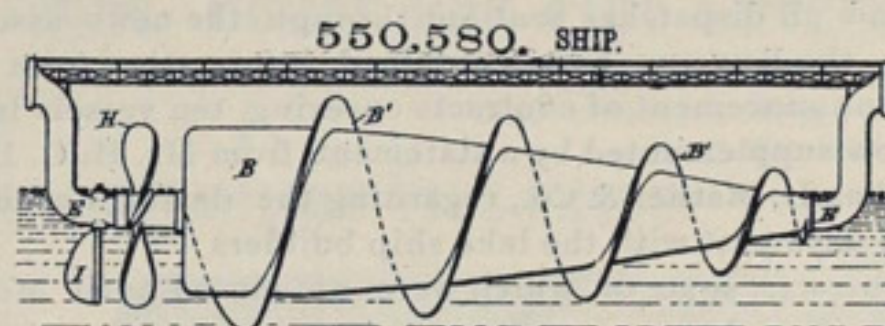
be made by the secretary of the navy, and while so serving in the naval service of the United States they shall be entitled to receive the same pay and emoluments as officers of the same grade performing the same duties in the same service."

Illustrated Patent Record.

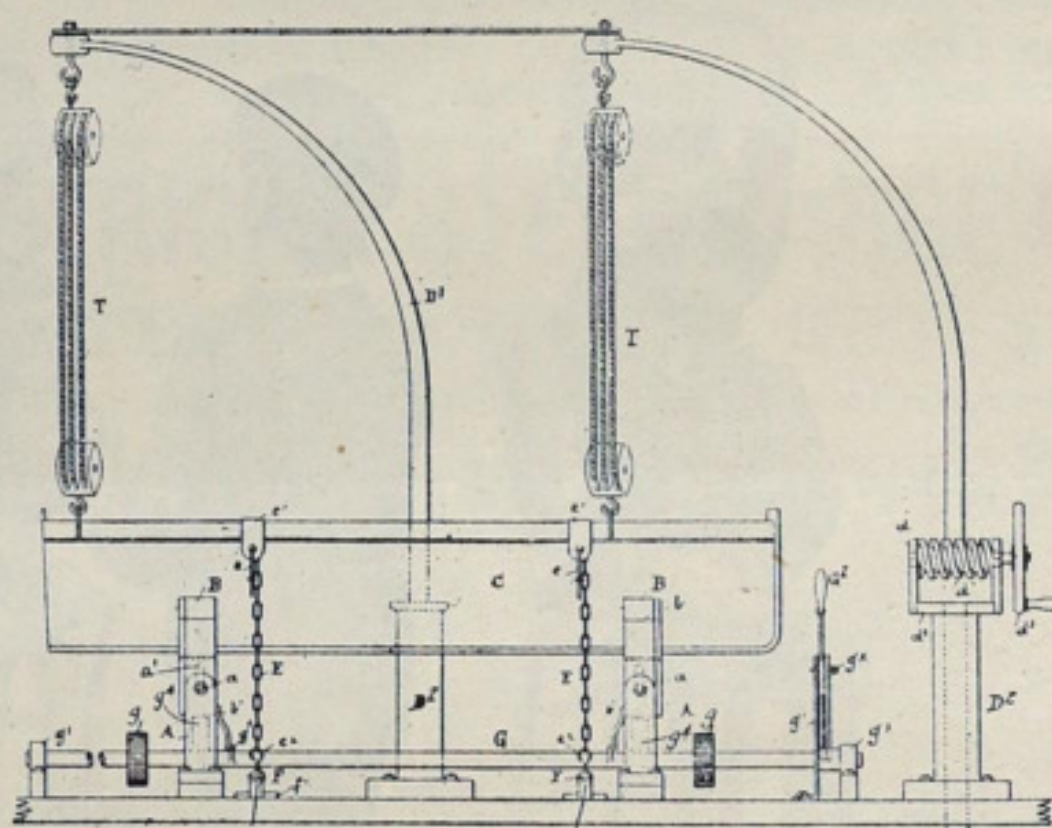
SELECTED ABSTRACTS OF SPECIFICATIONS OF A MARINE NATURE—FROM LATEST PATENT OFFICE REPORTS.

550,580. Ship. Julius Bluemel, San Francisco, Cal. Filed April 4, 1895. Serial No. 544,403.

Claim.—In a ship, the water-tight hull B, tapering longitudinally as shown, having an exterior spiral flange B' fastened to it and an internal gear B² fastened around its interior, pinion A and engine F suitably located in stationary position on platform or floor D, the stationary, hollow, central-shaft E having openings G and G' located inside of hull B and terminating in upright position above water line or level and having exits C and C' as shown, bridge or railing J fastened and supported from ends C and C' on E, propeller H fastened to hull B, rudder I and its operating mechanism I'.



550,700. MEANS FOR SECURING AND RELEASING BOATS ON BOARD SHIPS.



550,700. Means for Securing and Releasing Boats on Board Ships. Carl J. F. Devos, Rotterdam, Netherlands. Filed June 6, 1895. Serial No. 551,811. Patented in England Oct. 24, 1893, No. 20,073; in Belgium Nov. 23, 1893, No. 107,309; in France April 19, 1894, No. 237,899, and in Germany May 2, 1894, 79,228.

Claim.—The combination with a ship's boat, its support, and fore and aft grips for each side of the boat, said grips provided at one end with a hook adapted to be hooked to the gunwale of the boat, and at the other end with an eye; of a rod for each grip adapted to pass through the eye thereof, stationary guide bearings for said rods and two intergeared rock shafts provided with cranks or radial arms connected with the inner end of the rods, whereby when said shafts are rocked in one or the other direction a corresponding endwise motion is imparted to the rods moving them into and out of the grip eyes.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on Dec. 7, 1895:

	Wheat, bushels.	Corn, bushels.
Chicago.....	21,093,000	686,000
Duluth.....	5,169,000	.....
Milwaukee.....	611,000	.....
Detroit.....	407,000	6,000
Toledo.....	1,084,000	116,000
Buffalo.....	2,700,000	330,000
Total.....	31,070,000	1,138,000

As compared with a week ago, the above figures show at the several points named a decrease of 992,000 bushels of wheat and 255,000 bushels of corn.

Senator Brice Interested in Lake Levels.

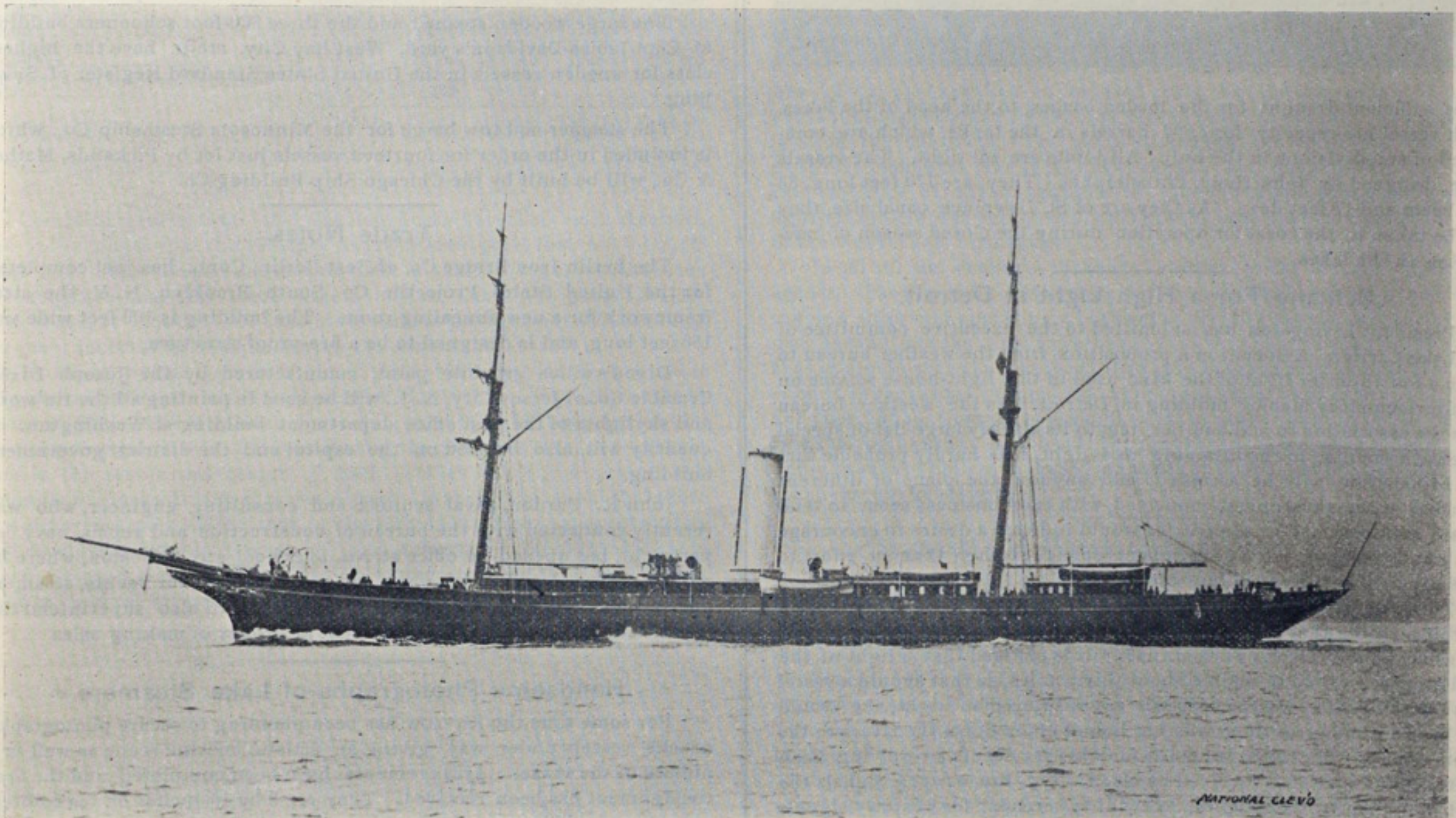
Senator Brice has decided to give attention to proposed plans for raising the waters of the lakes by means of dams. The REVIEW is in receipt of a letter from him asking for printed matter on the subject and it is understood that he is also seeking information from leading engineers and from officers of the Lake Carriers' Association and other commercial organizations. Strange to say the engineer corps of the army seems disposed to help Senator Brice in his investigations. It is said that the war department has agreed to furnish him with a rough estimate of the cost of the works that would be required. Lieut. Cavanaugh of Detroit and Col. Jared Smith of Cleveland, two officers of the engineer corps, are quoted as saying that the scheme is practicable. Lieut. Cavanaugh is also credited with saying that plans for a series of dams were advocated by the late Gen. O. M. Poe. This statement sounds strange to anyone who has read Gen. Poe's letter on the subject in the MARINE REVIEW of Sept. 7, 1893.

In fact it is strange to find any of the members of the army engineer corps encouraging plans for improving lake waterways by regulating the levels near the stage of high water. Some of the leading hydraulic engineers of the country who are engaged in civil pursuits have repeatedly drawn attention to the advantages of such a system of improvements but

find, also, that there are many engineers well posted on this subject who are of the opinion that the necessary data does not exist on which to base satisfactory plans for the improvement, and for that reason I think thorough determinations for securing such data should be made under the supervision of the International Deep Waterways Commission. Such determinations would be authority for both governments."

Jack Works Best to Lively Music.

Mr. J. W. Walton of the Upson-Walton Co., Cleveland, tells of a good story about a well known wire rope manufacturer in England, Mr. John Temple, who is at the head of the Warrington wire rope works. When a comparatively young man, he was in charge of a cable expedition. Unfortunately, the steamer containing the outfit went on the rocks on the south coast of England during Christmas week. The water was cold and the Atlantic sent up half a gale of wind which made the position of the freight steamer perilous. The first thing to be done was to lighten the ship, and lighters were accordingly obtained at once. Of course a cable could not be cut into sections without largely destroying its worth, and the sailors were instructed to form a circle and "walk" the wire out over the side of the vessel; but as this resulted in their becoming thoroughly saturated with the salt water of the hold, and the wind was cut-



VANDERBILT'S STEAM YACHT VALIANT, SUPPOSED TO BE MOST FINELY FURNISHED YACHT IN THE WORLD.

they have been bitterly opposed by the army officers. However, this is immaterial if the subject is now to be thoroughly considered.

A civil engineer who has given a great deal of study to this subject of dams says: "I am afraid there are some features of this project which the engineer corps will advocate and which will do more harm than good. Lieut. Cavanaugh is quoted as saying that the plan is to construct 'a series of submerged dams and wing dams where the improvements are to be made.' If the level of lake surfaces is regulated by a dam at Buffalo, then dams in the Detroit river and St. Clair river would destroy the effect of the regulation on Lake Huron and would be worse than a useless waste of public money. The level of Lake Huron should be regulated by the slope of the St. Clair river, and if this channel should be restricted by wing dams, the effect would be simply to lessen the beneficial effect in Lake Huron and raise the plain of high water, and possibly cause damage which the government would be called upon to meet.

"I think the influence of the vessel interests should be directed towards having this whole problem put into the hands of the International Deep Waterways Commission, recently appointed, to report upon a proper plan for doing this work. The problem is an international one, and if settled by this commission would likely be satisfactory to the governments of both countries, but any plan submitted by the engineer corps would necessarily have to be approved by the Canadian government, before it could be executed, and such approval might be hard to obtain, in view of our own war department having the matter in charge. You will

ing, human nature could stand it no longer, and the men "struck." Something had to be done at once, so Mr. Temple hastily dispatched one of his aids to a neighboring Cornish village in search of musicians. The boat soon came back with three fiddlers, each with his instrument under his arm, and according to Mr. Temple's instructions, one of them struck up a lively tune, while the others went below to warm their benumbed fingers, relieving each other every few minutes. Under the inspiring strains of the music, the men worked with a will and in a surprisingly short time the work was done and the vessel floated off at high tide. The young manager in this expedition was highly complimented by the directors of the company upon his success, but the old heads looked over their spectacles in some wonder at the item, "so many pounds, shillings and pence for fiddling," and they inquired: "Is not this rather an extraordinary charge Mr. Temple?" When the particulars were told, however, they very gladly allowed the remarkable bill; all of which goes to show that the old fashioned idea that Jack works best to lively music was founded on a deep principle of human nature.

Models representing each type of war ship of the United States navy are being made at the Washington navy yard. Seven men have been constantly employed for some time past in constructing these models, which cost from \$2,000 to \$8,000 apiece. A model of the fast cruiser Columbia, now under way, is only 5 feet long and yet it is a perfect likeness of the big vessel.

Standard Oil Tank Barges.

The illustration herewith shows one of the two oil barges built last spring for the Standard Oil Company by the American Steel Barge Company. They are very trim vessels and have been successful in every way. They have been in commission nearly all season carrying oil in bulk from Whiting, Ind., where a pipe line runs into the lake to a depth that



gives sufficient draught for the loaded barges, to the head of the lakes. Each vessel has capacity for 8,000 barrels in the tanks which are composed of sub-divisions in the hull. All joints are oil tight. The vessels were designed by John Haug, Philadelphia. They are 170 feet long, 33 feet beam and 17 feet deep. As they are of St. Lawrence canal size, they can be taken to the coast for operation during the closed season of navigation on the lakes.

Scheme For a High Light at Detroit.

President Livingston has submitted to the executive committee of the Lake Carriers' Association a proposition from the weather bureau to place a fourth-order light of the kind used in the light-house service on the fourteen-story Mabley building in Detroit. As the weather bureau asks the association to add another item to its already large list of special expense accounts, for maintaining this light, it is hardly probable that the proposition will be accepted, and anyhow the plans of different branches of the government connected with lake business seem to tend toward extremes, and in some cases would indicate a desire to encourage the employment of more government officials rather than an effort to specially benefit the vessel interests.

This latest weather bureau scheme is to place a light on the big Detroit building that can be seen from Bar point, down the Detroit river, and as far up the river as St. Clair flats. It is claimed that a light of the kind proposed would be visible about thirty miles, so that should a vessel pass Detroit before weather signals are displayed at night, she would still have advantage of them whether bound up or down the rivers to the points named. The light intended for this service is a revolving flash light, lighted with and revolved by electricity. For easterly signals the light would be red, flashing red every thirty seconds; for westerly signals it would be white, flashing red every thirty seconds; and for cold wave warnings, white flashing green every thirty seconds. It is claimed that on account of the high position of the light it would not conflict with any light now on the river. Another claim in favor of it is that vessels bound for Buffalo have no means of obtaining storm warnings after leaving Detroit, unless they pass to the south shore of Lake Erie; and again vessels waiting at Amherstburg for weather have no means of obtaining information at night, while with this light in operation they would be advised of weather forecasts several hours after passing the Detroit station.

But supplemental to all this is the fact that the weather bureau can offer only \$200 or \$300 towards establishing the light, which would cost about \$2,000. They want the vessel owners or commercial bodies in lake cities to bear the balance of the cost. The work of the weather bureau on the lakes is as a whole very creditable and of great assistance to shipping, but it is hardly probable that this specialty will be taken up when other improvements of a more direct and pressing kind are constantly demanding attention.

Ship Yard Matters.

In a letter to the REVIEW regarding repairs to the steamer Centurion which was ashore on Isle Royale, Lake Superior, not long ago Capt. McDougall of the American Steel Barge Co. says: "I think the cellular bottom was the means, in this case, of saving the ship from much serious damage. As I understand it, the ship ran onto a reef of rocks at a rather good speed, and was in a badly exposed condition, and the fact that her

inner bottom was not ruptured was partly due to the giving way of the cellular construction. When she was first docked only a few of her plates were found damaged on the outside, and everybody who saw her bottom was astonished. When the outer plates were removed, however, it was found that the sections which formed the cells had sheared the rivets, and one part passing the other had collapsed in a gentle manner without breaking the outer shell, and the inner bottom was almost intact. The accident resulted in more damage to the inside construction than to the shell plating. We think the job on the Centurion was the quickest job of repair work ever done in America, as she was in the dock but thirteen days. During that time some sixty plates were taken off, heated, rolled and replaced; ten new plates and 192 new frames put in; 33,000 shell rivets taken out and put back; much of the inner construction made new, and other parts heated and straightened. Weather was very favorable during the period of repairs and between two hundred and fifty and three hundred men were working on the job all the time."

The Union Dry Dock Co., Buffalo, has just completed a job on the fire boat of that city that will enable her to engage more extensively in ice breaking. Extra heavy frames were put into the boat and a belt of $\frac{3}{4}$ -inch plate put on each side of the vessel at the water line for a distance of about 30 feet back from the stem. The steamer Russia is now in the Buffalo dock. Her plates on both sides of the bow are dented for a distance of about 20 feet back from the bow and 10 feet up and down.

The large wooden steamer and the three 300-foot schooners building at Capt James Davidson's yard, West Bay City, are to have the highest class for wooden vessels in the United States Standard Register of Shipping.

The steamer and tow barge for the Minnesota Steamship Co., which is included in the order for fourteen vessels just let by Pickands, Mather & Co., will be built by the Chicago Ship Building Co.

Trade Notes.

The Berlin Iron Bridge Co. of East Berlin, Conn., has just completed for the United States Projectile Co., South Brooklyn, N. Y., the steel framework for a new annealing room. The building is 100 feet wide and 150 feet long, and is designed to be a fire-proof structure.

Dixon's silica graphite paint, manufactured by the Joseph Dixon Crucible Co. of Jersey City, N. J., will be used in painting all the tin work and skylights of the post office department building at Washington. A quantity will also be used on the capitol and the district government building.

John R. Purdon, naval architect and consulting engineer, who was recently connected with the bureau of construction and repair, navy department, has opened an office at No. 13 School street, Boston, where he will be prepared to furnish plans and specifications for yachts, steamers and sailing vessels of every description. He will also superintend the construction of vessels and act as agent or broker in making sales.

Handsome Photographs of Lake Steamers.

For some time the REVIEW has been planning to secure photographs of lake vessels under way, giving an artistic marine scene as well as a picture of the vessel. Arrangements have been completed and the first consignment has been received. They are 8 by 10 inches on tea colored mounts and will be sent to any address. We have a number in stock, and as more are being taken every few days we can furnish prints of almost any of the modern freight steamers at \$1 each. The following are on hand:

J. J. McWilliams,	J. N. Glidden,	Cherokee,	D. Leuty,
Yukon,	Wawatam,	Majestic,	F. L. Vance,
Colgate Hoyt,	Briton,	Chas. Hebard,	Selwyn Eddy,
John Harper,	Pillsbury,	Saginaw Valley,	Forest City,
Gladstone,	Maritana,	S. S. Curry,	Wallula,
John V. Moran,	Malta,	H. J. Johnson,	Jim Sheriffs,
John Mitchell,	Quito,	Choctaw,	Zenith City,
Corsica,	City of Collinwood,	Victory,	Merida,
Annie M. Ash,	Pascal,	P. Pratt,	

Send \$1 to the MARINE REVIEW, 516 Perry-Payne Bldg, Cleveland, O.

All six of the steel tow barges just ordered from lake builders by Pickands, Mather & Co., Cleveland, representatives of John D. Rockefeller and the Minnesota Iron Co., will be fitted with steam towing machines of the kind manufactured by the American Ship Windlass Co. This will bring the number of machines of this kind on the lakes up to nineteen next season. They are being fitted to all steel consorts now under way in lake ship yards. On the Atlantic coast there are six of them in use.

CAPTAINS AND MATES ARE INVITED TO CALL AT THE OFFICE OF THE MARINE REVIEW AND LOOK OVER THE CHARTS AND SAILING DIRECTIONS OF LAKES SUPERIOR, MICHIGAN, HURON, ERIE AND ONTARIO, PUBLISHED BY THE HYDROGRAPHIC OFFICE.

All Records Broken.

ORE MOVEMENT BY WATER AGGREGATES 10,233,910 GROSS TONS—RECEIPTS AT LAKE ERIE DOCKS EXCEED EIGHT MILLIONS AND YET STOCKS NOW ON DOCK ARE HALF A MILLION LESS THAN THEY WERE A YEAR AGO.

Official returns from dock managers at all ore-shipping ports have been received by the MARINE REVIEW, and the shipments by water during 1895 are found to foot up to the enormous total of 10,233,910 gross tons. Thus the records of all previous years, lake and rail, are exceeded by more than a million tons. In 1892 the shipments, lake and rail, aggregated 9,074,243 tons. Last year the aggregate, lake and rail, was only 7,748,122 tons. Lake shipments this year exceed the lake shipments of 1892 by 1,688,597 tons. Escanaba again regains its prestige as the leading shipping port with a movement of 2,860,172 tons to its credit for the season. Ashland and Two Harbors have both exceeded the two million mark and Duluth takes fourth place with shipments of 1,598,783 tons. Shipments of the several ports during five years past appear in the following table:

LAKE SHIPMENTS OF IRON ORE, GROSS TONS.

	1895.	1894.	1893.	1892.	1891.
Escanaba	2,860,172	1,644,770	2,048,981	4,010,585	3,058,590
Marquette	1,079,485	1,424,856	1,086,934	1,026,338	1,056,027
Ashland	2,350,219	1,788,590	1,117,520	2,223,683	1,261,658
Two Harbors	2,118,156	1,373,253	903,329	1,165,076	890,299
Gladstone	109,211	79,108	203,585	115,886	177,866
Superior	117,884	.....	80,273	4,245	.....
Duluth	1,598,783	1,369,252	440,292	.....	.....
Total by lake	10,233,910	7,629,829	5,880,918	8,545,313	6,444,440
Total all rail .....	.....	118,293	178,037	528,030	650,541
Total shipments .....	.....	7,748,122	6,058,955	9,074,243	7,094,981

Complete returns from all Lake Erie docks have also been received, and it is found that the receipts at lower lake ports foot up 8,112,228 gross tons, while the amount now on dock is 4,415,712 tons. At the close of navigation last year there was on dock at Lake Erie ports 4,834,247 tons of ore, or about 500,000 tons more than at present, notwithstanding the great increase in receipts during the season just closed.

As shown by our figures of May 1, 1895, there was on dock at lower lake ports at the opening of navigation 2,642,980 tons. The shipments to furnaces from Lake Erie docks have thus been 6,339,496 tons during the past season, against 4,104,948 tons during the season of 1894, and 4,048,471 tons in the prosperous season of 1892. Tables below give receipts and amounts on docks during five years past. It should be noted that there is a difference of 2,121,682 tons in the shipments from upper lake ports and receipts at Lake Erie ports. Of this difference 1,863,781 tons went to North Chicago, South Chicago and Milwaukee, and the balance of 257,901 tons to charcoal furnaces at a few small points that are reached by water.

IRON ORE RECEIPTS AT LOWER LAKE PORTS, GROSS TONS.

PORTS.	1891.	1892.	1893.	1894.	1895.
Toledo	191,105	139,987	145,515	158,384	260,730
Sandusky	105,907	49,736	4,464	23,043	12,361
Huron	14,910	65,000	137,700	172,775	146,442
Lorain	266,009	190,400	165,667	150,424	214,219
Cleveland	1,257,775	1,950,224	1,260,716	1,624,573	2,312,370
Fairport	699,434	866,611	792,517	976,222	914,617
Ashtabula	1,599,785	2,555,416	1,845,738	1,987,722	2,474,791
Conneaut .....	.....	1,130	203,207	237,905	244,967
Erie	393,759	645,230	469,299	654,438	811,989
Buffalo & Tonaw'nda	410,000	197,000	308,238	395,339	719,742
Total	4,939,684	6,660,734	5,333,061	6,350,825	8,112,228

IRON ORE ON DOCK DEC. 1, GROSS TONS.

PORTS.	1891.	1892.	1893.	1894.	1895.
Toledo	122,515	71,409	92,911	96,157	113,132
Sandusky	122,000	87,500	78,439	77,004	34,375
Huron	14,910	45,000	89,000	147,632	101,000
Lorain	250,812	147,600	201,632	223,733	224,264
Cleveland	1,114,762	1,347,992	1,163,930	1,441,785	1,200,792
Fairport	597,617	610,609	578,033	660,980	605,470
Ashtabula	903,957	1,312,658	1,296,431	1,439,119	1,301,302
Conneaut .....	.....	.....	91,337	199,365	292,460
Erie	252,916	401,683	359,827	454,233	335,718
Buffalo & Tonaw'nda	129,000	125,000	119,170	94,239	207,199
Total	3,508,489	4,149,451	4,070,710	4,834,247	4,415,712

A fixed white lantern light has been established on the outer end of the breakwater at the easterly side of the entrance to Two Harbors, Lake Superior.

ALL NEW HYDROGRAPHIC CHARTS ARE KEPT IN STOCK BY THE MARINE REVIEW, 516 PERRY-PAYNE BUILDING, CLEVELAND.

Importance of the Big Order for New Ships.

Pickands, Mather & Co. as representatives of John D. Rockefeller, the Minnesota Steamship Co., American Steel Barge Co. and other corporations will operate next season, when all orders with ship builders are filled, fifty-nine vessels, of which twenty-seven are steamers and thirty-two tow barges. Every one of these ships is of the modern type of steel freight carrier. Some of them are, of course, of only 2,000 to 2,500 gross tons capacity, but the fleet is by far the most valuable that is to be found under the control of any one concern in the country. The list is made up as follows:

Minnesota Steamship Co.—Nine steamers and five consorts.

Huron Barge Co.—One steamer and one consort.

Interlake Co.—Two steamers.

American Steel Barge Co.—Eight steamers and twenty-one barges.

John D. Rockefeller—Seven steamers and five barges.

Some idea of the importance of the single order for fourteen vessels placed by this firm may be gained from the statement that if these new vessels alone were placed end to end their combined length, over all would be full 5,600 feet, or considerable more than a mile. This one order has added enough work to the engagements of lake ship yards to keep all of the steel yards, with one exception crowded to full capacity until Aug. 15 of next year.

It is quite evident from the difference that exists in dimensions of the different vessels making up the order for the fourteen ships that the several builders were permitted to work out designs that are patterned after vessels which they had already built, or which were under way. This plan resulted in reduced costs, but the two points of 4,000 gross tons capacity and 2,000 horse power were, of course, kept in view in all of the contracts. The work of letting the contracts was very skillfully managed, and it is quite certain that none of the builders had any idea of the magnitude of the job upon which they were figuring until it was announced, on Thursday last, that contracts for ten of the vessels had been closed.

In all of the dealings Pickands, Mather & Co. simply appear as agents. They have for a long time past been in the business of purchasing new ships and operating a big fleet of freight vessels, and during the past several months they have been collecting information as to what they might do with the builders. The ship builders were simply asked to submit propositions on one, two or more vessels, as the case might be, and they had no thought of enough work in store to fill up vacant berths in all of their yards. As a result the purchasers of the vessels are a great many thousand dollars in pocket on account of the competition, but how much can not be estimated.

Suggests the Name of Capt. Wm. S. Mack

Editor MARINE REVIEW: As a compromise candidate for the presidency of the Lake Carriers' Association, what's the matter with Capt. Wm. S. Mack of Cleveland? There will, of course, be no controversy and no ill feeling in the organization, no matter who is elected to the presidency, but it would seem to those of us not directly interested that an under-current of dissatisfaction not altogether healthful may result from the selection of any of the several members who are prominently spoken of for the place. No man has worked harder than Capt. "Bill" Mack for the interests of the organization. He has been untiring in his efforts and always to the front, and I feel quite certain that he could command considerable support from Detroit and places in this vicinity.

Detroit, Mich., Dec. 11, 1895.

J. W. WESTCOTT.

Around the Lakes.

Senator McMillen of Detroit has offered his fine steam yacht Idler for sale. He spent \$20,000 in rebuilding the vessel, not long ago.

Buffalo's commercial organizations are all petitioning Washington authorities to establish a branch hydrographic office at that point.

It is expected that the Cleveland-Cliffs Co's. big charcoal iron furnace at Gladstone will go into blast March 1. It is the largest furnace of the kind in the world.

The hydrographic office announces the issue of two new charts of the great lake region—Toronto harbor, and Georgian bay from Cabot Head to Boucher point. These charts may be obtained from the MARINE REVIEW.

Repairs to the bottom of the Northern line steamer Northern Wave at Detroit will probably not be finished before March. The vessel was evidently subjected to very hard usage on the rocks near Sand Beach harbor as practically her entire bottom is broken up.

Ore docks of the Duluth & Winnipeg Railway Co. on Allouez bay, Superior, will be enlarged during the winter by an addition of about 900 feet. The addition will increase the length of the dock to 1,600 feet with 250 pockets in all. About 4,000,000 feet of lumber and 500 tons of iron will be used in the improvement.



DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O

SUBSCRIPTION—\$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department on June 30, 1895, contained the names of 3,342 vessels, of 1,241,459.14 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1894, was 359 and their aggregate gross tonnage 634,467.84; the number of vessels of this class owned in all other parts of the country on the same date was 316 and their tonnage 642,642.50, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1895, was as follows:

Class.	Number.	Gross Tonnage.
Steam vessels.....	1,755	857,735.00
Sailing vessels.....	1,100	300,642.00
Unrigged.....	487	83,082.00
Total.....	3,342	1,241,459.00

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30,	Number.	Net Tonnage.
1891.....	204	111,856.45
" " " 1892.....	169	45,168.98
" " " 1893.....	175	99,271.24
" " " 1894.....	106	41,984.61
" " " 1895.....	93	36,353.00
Total.....	747	334,634.28

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.
(From Official Reports of Canal Officers.)

	St. Mary's Falls Canal.			Suez Canal.		
	1894.	1893.	1892.	1894.	1893.	1892.
No. vessel pass'ges	14,491	12,008	12,580	3,352	3,341	3,559
T'n'ge, net registd	13,110,366	9,849,754	10,647,203	8,039,106	7,659,068	7,712,028
Days of Navigat'n	234	219	223	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

IT WOULD be entirely in order for the Lake Carriers' Association to make application, through its secretary or otherwise, to the light-house board to change the boundaries of the light-house districts on the lakes so as to include in the eleventh district all of the river, clear down to its mouth below Bar point. As the districts are at present made up, that part of the Detroit river from Grassy island down is in the tenth district. The naval officer who is in charge of the tenth district as inspector is located at Buffalo. He is too far away from this important part of his district. At Detroit there is a naval officer in charge of the eleventh light-house district. Add to his charge that part of the river below Grassy island. In the spring and fall, when buoys, light-ships, etc., are being placed or removed he will be on the spot, or can be readily reached by telephone from any point along the river. The officer at Buffalo is too far away and can not act intelligently when careful judgement is necessary.

FOOL FRIENDS of the life saving service in Washington are doing the men of this service a great wrong in introducing before congress measures that have no chance of passing, but which give out the impression that the life savers themselves are chronic applicants for increased pay, pensions, etc. One of the latest measures goes so far as to add chaplains to the service, providing a chaplain for each district. Surely there are churches enough within range of the life saving stations to provide for the spiritual welfare of the men. It is this effort to saddle the service with all kinds of unnecessary costs that has prevented the passage of a measure for the relief of widows and orphans of men who lose their life in the work.

UNLESS A change is made in the present programme of arrangements for the annual meeting of the Lake Carriers' Association it is quite probable that headquarters will be established at the Russell house this year instead of the Cadillac. Capt. J. J. H. Brown of Buffalo is now very prominently mentioned among owners deserving of the presidency. Capt. Brown has certainly conducted at Buffalo two or three of the most important reforms undertaken by the organization.

JOSEPH NIMMS, JR., formerly with the bureau of statistics, treasury department, and well known through his writings on statistics, estimates that the traffic likely to use the proposed Nicaragua canal should not be

estimated above 3,000,000, which is about 2 per cent. of the tonnage that has passed through the St. Mary's Falls canal this season. If this estimate is anywhere near correct, the whole Nicaragua scheme is without commercial value.

ABOUT 40,000 tons of plates and shapes will be required to build the fleet of new steel vessels for which Pickands, Mather & Co. of Cleveland have distributed orders among several lake ship builders during the past week. From the standpoint of the steel maker alone, to say nothing of the great labor involved in preparing these plates and shapes and putting them together, this lake ship building business is becoming a very important item.

AN OUTPUT of 14,000,000 tons of ore from the mines of the Lake Superior region next season would not cause great surprise. The change that has come over the iron business in the past six months is more wonderful than such an increase in the ore business.

In General.

A twin-screw naphtha yacht, 75 feet long, 12½ feet beam and only 3 feet draft, is being built by the Gas Engine and Power Co., Morris Heights, New York, for Alfred Van Santvoord of New York. With this vessel a speed of 9 knots will be possible with a fuel supply for 500 miles. She will be the largest naphtha yacht afloat.

Among the first bills introduced by Senator Frye in the present congress was one to admit forty-eight foreign-built ships to American registry with the proviso that owners of such foreign-built ships shall agree to build new vessels of equal tonnage in the United States. Senator Frye does not, of course, favor this measure. It was introduced by him upon request from Mr. Chamberlain, United States commissioner of navigation.

At a convention of the National Seamen's Union of America held in New York last week J. Robertson of Chicago was elected president, F. H. Burgeson of Boston vice president, and T. J. Elderkin of Chicago secretary and treasurer. Andrew Furnseth of California and Andrew Elderkin were elected delegates to the American Federation of Labor. It was decided to present to congress a bill "for the protection of life and property on the great lakes."

All United States men-of-war hereafter entering Newport harbor will be attacked by the torpedo boat Cushing, should that vessel be at Newport at the time. Orders to this effect have been issued by the navy department. The condition of war will, of course, be missing, but the attack will be made and the ability of the boat to approach to within torpedo range of the man-of-war will be demonstrated. While the armored cruiser Maine was at Newport her commanding officer was notified by the Cushing of his orders. Notwithstanding the close watch kept the succeeding night, the Cushing got within torpedo range before discovery. It was consequently supposed that she had sunk the armored cruiser.

The big side-wheel steamer Adirondack which is being built by John Englis & Sons, Brooklyn, for service in the Peoples Line, between New York and Albany on the Hudson, was launched a few days. This vessel, which is built of oak below the water line with red cedar and chestnut above, is 406 feet over all, 387 feet on the water line, 50 feet beam and 87 feet over guards, and will draw loaded about 7 feet 6 inches of water. There are four decks, three of which are given up entirely to passenger accommodation. Beam engines of about 4,000 horse power will be supplied with steam from four large boilers. The paddle wheels will be 34 feet in diameter with feathering buckets of 12 feet face. A speed of 18 miles per hour is looked for from the vessel. All machinery was built by the W. & A. Fletcher Co., Hoboken, N. J.

More Water Tube Boilers.

Babcock & Wilcox water tube boilers are to be used in the 400-foot freight steamer that is being built by the Cleveland Ship Building Co. for the Zenith Transit Co., of which A. B. Wolvin of Duluth is president and general manager. The boiler plant in the vessel, which will be named Queen City, is to be a duplicate of the plant in the steamer Zenith City. The large steel tug for which the Cleveland company received a contract a few days ago from the Duluth & Iron Range Railroad Co., will also be fitted with Babcock & Wilcox water tube boilers. This tug will be used for harbor service at Two Harbors, and will be 100 feet over all, 23 feet beam and 13 feet deep, with a 4-foot water bottom. Decks and houses as well as hull will be of steel. Engines will be compound with cylinders 18 and 40 inches diameter by 30 inches stroke.

The MARINE REVIEW has been for some time preparing booklets for its advertisers, and our products in this line have always attracted attention. The latest work turned out is entitled "When the Clouds Rolled by." Five thousand copies of this little book were published for Castner & Curran, Philadelphia. Any one thinking of putting out information to the marine trade in a way that will insure attention may send to the REVIEW for a sample.

Characteristic Letter from Admiral Belknap.

Richard P. Joy of Detroit, who is a patriotic worker in behalf of American shipping, has stirred up Admiral Geo. E. Belknap, U. S. N., on the subject of abrogating the treaty which prevents the building of vessels of war on the lakes. Mr. Joy sent to Admiral Belknap a copy of the *MARINE REVIEW* containing a communication in which he (Mr. Joy) strongly urges the abrogation of the treaty. The admiral replies with a letter full of fire and vigor, such as might be expected from an officer who has attained distinction in the navy. He says:

"With a fixed and well digested policy, indomitable push and sleepless foresight, ever looking towards future contingencies and the expansion of the empire, British statesmen, when they do not play the part of a bully after the methods of Lord Palmerston, mask their designs under the cover of a velvet-handed diplomacy as seductive as it is dangerous. Too often, in truth, it lulls other powers and especially the too-trustful United States into a blind sometimes fatal sense of security. The siren song of Britannia is continually sounded in our ears in notes exalting the ties of kindred blood and tongue, but when we look about us and note the fact that three-quarters of our diplomatic contentions of any moment are with Great Britain and her super-royal colony, the dominion of Canada, we may well look askant at their professions of fair dealing and sincerity. Insatiate Britain, indeed, never relaxes her vigilance in any direction, and whenever she detects a crack of opportunity in any quarter, she inserts, on the instant, a wedge of claim and demand and at the propitious moment for herself, drives it home with dogged purpose and resistless blows, regardless of the sensibilities or the rights of other powers, save, perhaps, Russia, France and Germany.

"In an editorial on the 'Unpopularity of England' the London Spectator of Oct. 19, after describing the distrust of England held by France, Germany, Austria, Russia and other European powers, says: 'Our own flesh and blood in America join the chorus and declare that, though we are sound of heart and in essentials virtuous and full of moral worth, we are, in the daily intercourse of international life, very unpleasant, a blundering, bullying, grabbing power, with no regard for the feelings of others, and therefore naturally and inevitably disliked. In the eyes of Europe we are the Pecksniff of nations; as for the little powers, they are white with rage whenever they think of England. England is nothing if she does not take her own lives and treat the rest of the world with that 'You be d—dedness' which Robert Lowe so much admired in one of our typical statesmen. 'Oh,' says the intelligent foreigner, 'there you have it. It is this very 'you be d—dedness' that makes you English so utterly unbearable.'"

"I submit that this arraignment of British characteristics goes beyond anything I have said in severity, and when we take into consideration the fact that Great Britain has surrounded our ocean coasts with a chain of arsenals and dock yards, as, for instance, Halifax, Bermuda, St. Lucia, Jamaica and Esquimalt, and opened a waterway from the St. Lawrence to the great lakes—all connected with London by cable, for instant intelligence and orders in the event of war—it seems a blind fatality on our part to so tie our hands on the coasts of our great domain on the lakes as to render us utterly defenceless in that vital quarter, inviting, as it were, the possible, if not probable, assaults of a power of a 'be d—dedness, of disposition and action so graphically portrayed in the influential journal just quoted.

"While England dominates the Mediterranean with her finest fleet, although her points of occupation are mere specks of territory in comparison with the possessions of Spain, France, Italy, Austria, Greece, Turkey and the northern shores of Africa bordering on that sea, what right has she to insist that the United States shall not keep a naval force of whatever strength they choose on the great lakes? Let the people of the great northwest, then, demand protection ashore and afloat, and where England mans or floats one gun, let us meet each one with two. Commerce is the handmaid of civilization, and every nation has the indubitable right to protect its ships wherever they may be. Therefore our great tonnage on the lakes should have the protection that forts and ships of war alone can give."

An Extraordinary Litigant.

From New York Commercial Advertiser.

The case of *The People vs. Shanks* will probably make a little history—legal history, but still, history. It is pretty difficult to conceive of a man who, without any possible interest himself, will sue a large corporation, go on his own bond in filing an attachment, knowing all the while that he had not a cent in the world, and could not satisfy judgments of many years' standing against him. Yet this is what was developed in the case of *The People vs. Shanks*. Shanks brought an action last spring against the Magnolia Metal Co. on an assigned claim by discharged employes for \$7,000. As the Magnolia Metal Co. was a foreign corporation, some one had to qualify as surety in bringing an attachment suit. As a matter of fact, Shanks acted both as plaintiff and bondsman. More ex-

traordinary still, he did so on the advice of counsel, who knew his financial condition, and, to add to the incongruity of the situation, his counsel stated that Shanks had no pecuniary interest in the assigned claim in question. Colonel Alexander S. Bacon of No. 34 Wall street did the probing, Mr. Linus A. Gould and S. Victor Constant of Constant & Coghill assumed the responsibilities for the action of his client, Shanks, and Police Judge Kudlich heard the case and couldn't see any particular merit in the plea that the alleged perjury was advised by counsel.

Colonel Bacon, the attorney for the Magnolia Metal Co., has for years been attending litigation growing out of suits brought by dummies in the interest of large corporations inimical to that company. The petty annoyances have grown to be intolerable and the company is invoking the law and is bringing these irresponsible offenders to justice. It is an open question whether a trust is not forming in the anti-friction metal business, and the fact that the Magnolia people have the standard metal, which, for about the same price gives three times the same service, has undoubtedly excited the cupidity of competitors who wish to take over the company's assets and good will without paying for them. Mr. C. B. Miller, president of the Magnolia Metal Company, stated in an interview recently that he had traced discharged employes directly to the office of the National Lead Co., the Hoyt Metal Co. and others. He also stated that his company had brought suit against the Sterlingworth Railway Supply Co. for \$120,000 damages for breach of contract, under circumstances which bear out the theory of an attempted combination in bearing metal. One of the leading stockholders in the Sterlingworth Railway Supply Co. is said to be a prominent official in the Standard oil pipe line.

In spite of considerable persecution, the Magnolia Metal Co. has thrived to such an extent that its very metal is now in use in most of the navies and railroads of the world, as well as in all classes of mechanical industry. However, the adoption of such methods as are disclosed in the Shanks case and the countenance of them by the members of the bar is a serious menace to all honestly conducted enterprises.

Diversity of Electric Machinery.

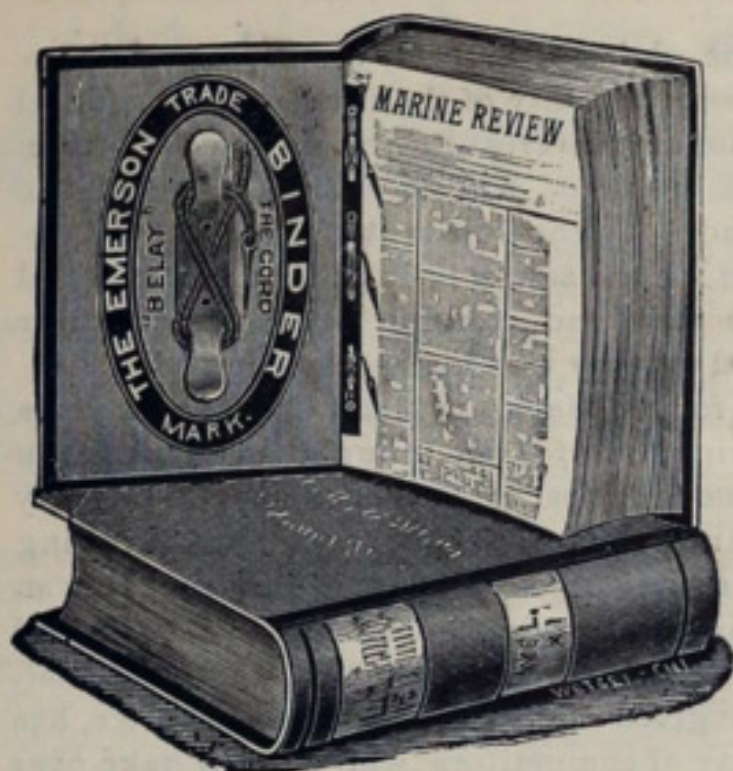
Some idea of the diversity of uses to which electric motors are now being put and the rapid spread of electricity in different directions may be gathered by glancing at the list of orders for motors received in the power and mining department of the General Electric Co. during one month this summer. These include operating mining machinery and shoe factory machinery; machinery for operating a yarn factory, a tannery, a powder mill and a watch factory; iron working machinery, foundry machinery, hoists for electric cranes, and a ventilator on a gun boat; machinery for propelling electric launches, for the operation of elevators, for blowing church organs and for operating woolen mills. These orders are scattered throughout the states of California, Colorado, Indiana, Ohio, Connecticut, Michigan, Pennsylvania, Rhode Island, Wisconsin and New York, as well as Lima in Peru and Rio de Janeiro in Brazil.

Shipmasters' Meeting in Washington.

Now that the vessels are laying up and the meetings of the Ship Masters' Associations are being held at the different ports, the annual meeting, to be held in Washington this year, is under discussion. The officers hope that at least a hundred ship masters and their wives will make up an excursion to the capital city. As far as possible all delegations except Buffalo possibly, will meet in Cleveland and leave here Monday, Jan. 20, about 3 p. m., arriving in Washington at 7 o'clock the following morning in time for the first session. The Milwaukee and Chicago parties can reach Cleveland about noon. The advantage, of course, in the party assembling at Cleveland is to obtain special rates and private car privileges.

There are a number of advantages in meeting at Washington. The officers can thus become personally acquainted with the head of steamboat inspection service, and objectionable rules may thus be explained and the way prepared for changes. The representatives of the different lodges will become better acquainted among themselves and business will be transacted for the best interest of the order. From the standpoint of pleasure, the trip is well planned, as the weather is comparatively pleasant during January in Washington. In addition to the numerous places of interest around the capital some members of the party will take the opportunity of making a side-trip to New York. The cost of the trip, including all ordinary expenses, Cleveland to Washington and return, will be about \$50, and \$40 will cover the extra expense of captains taking their wives along. The side-trip to New York will cost \$10 each. The financial secretary, W. A. Collier, of the Vessel Owners' Towing Co., Cleveland, will furnish full particulars.

A CHART COVERING LAKE HURON, GEORGIAN BAY AND THE STRAITS OF MACKINAC, ALL ON ONE SHEET, HAS BEEN ISSUED BY THE HYDROGRAPHIC OFFICE AND MAY BE HAD FROM THE MARINE REVIEW AT 75 CENTS. LAKE SUPERIOR ON ONE SHEET, LAKE MICHIGAN ON A SINGLE SHEET, AND LAKES ERIE AND ONTARIO IN THE SAME FORM ARE ALSO IN PRINT AND SELL AT THE SAME PRICE.



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and all in good repair. For full

INMAN TUG LINE,

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Boston, Mass.

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Length, 400 feet,

Width:

On top, 95 feet,

Bottom, 55 "

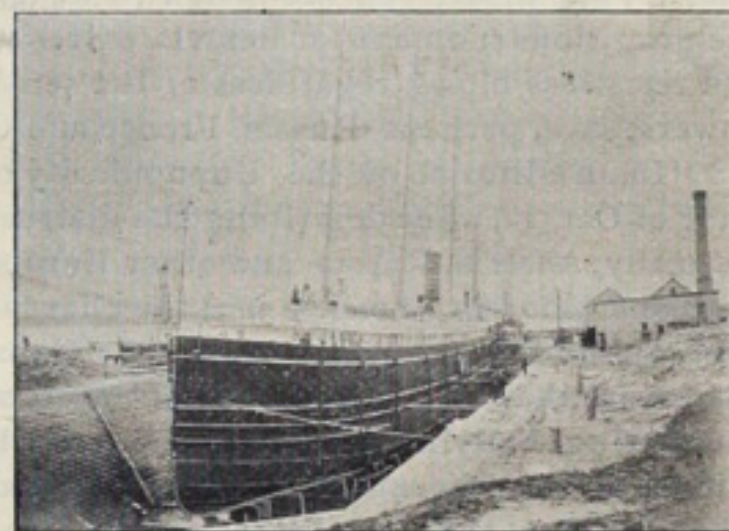
Gate, 62 "

Depth:

To Floor, 20 ft.

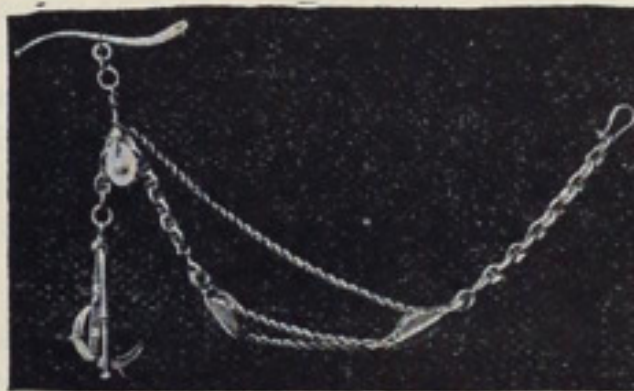
To Sill, 18 ft.

On Blocks, 16 ft.



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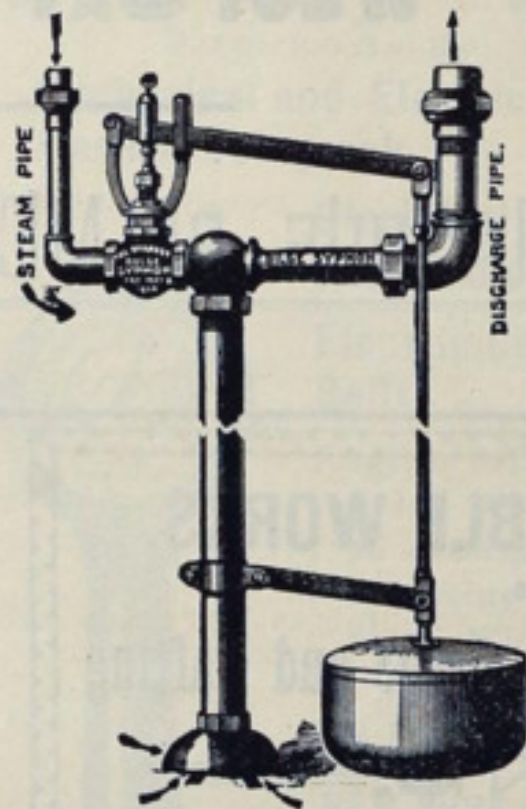


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It is the best, cheapest and surest way of keeping your vessel dry.

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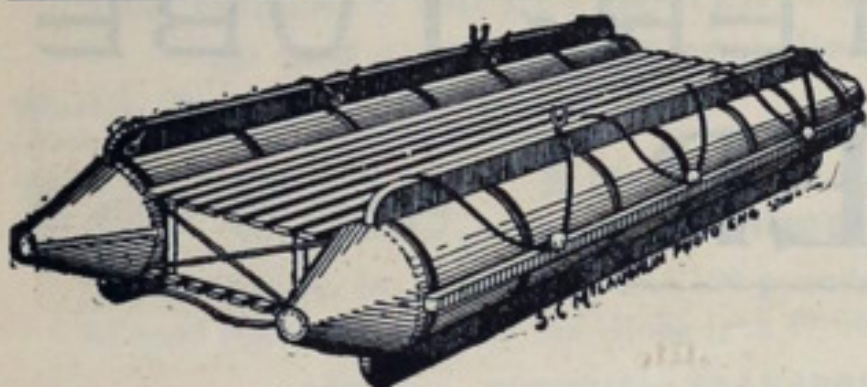
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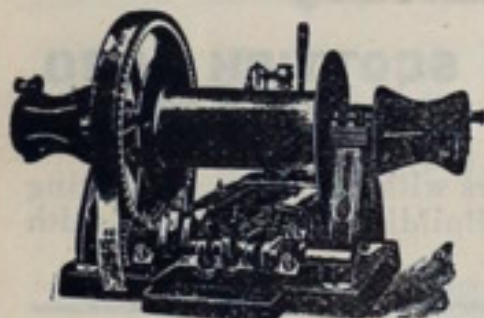
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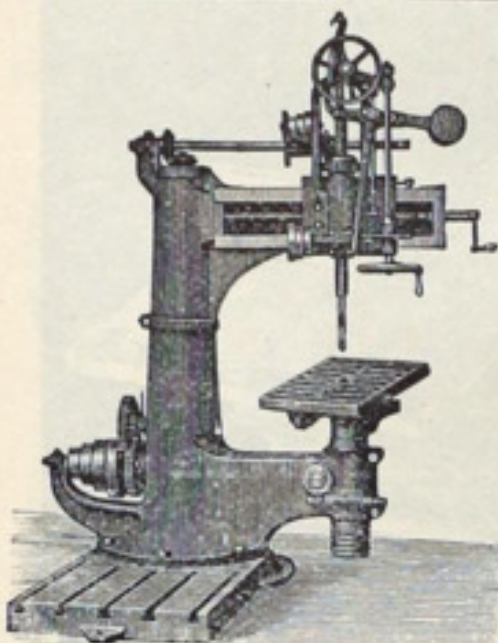
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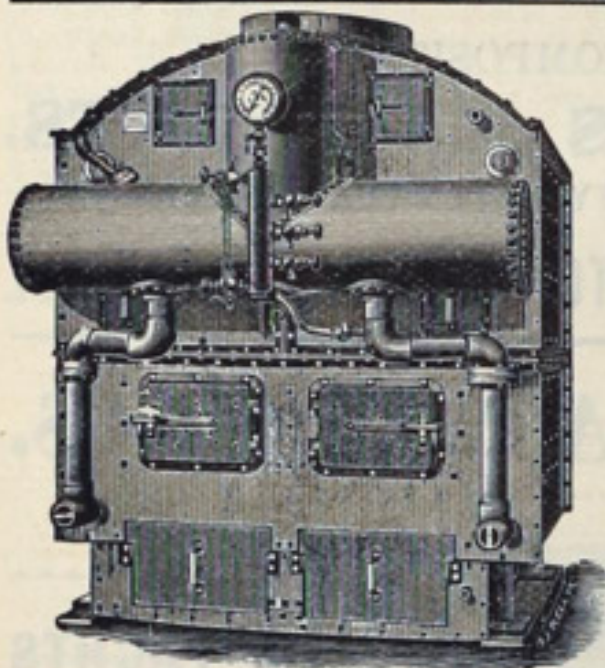
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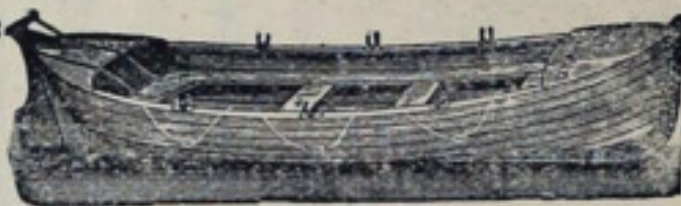
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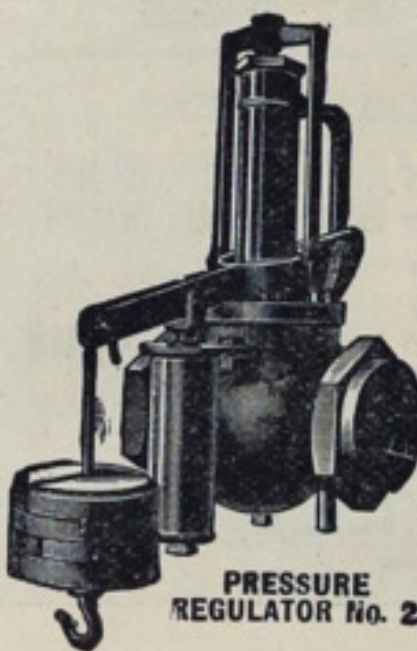
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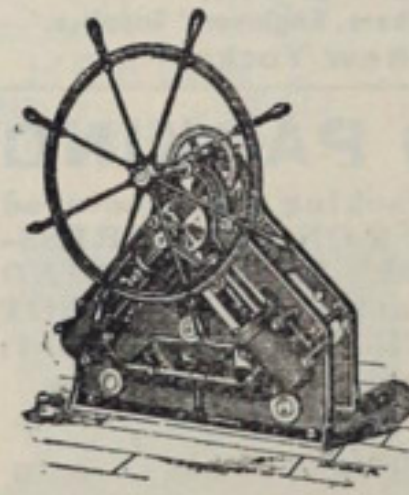
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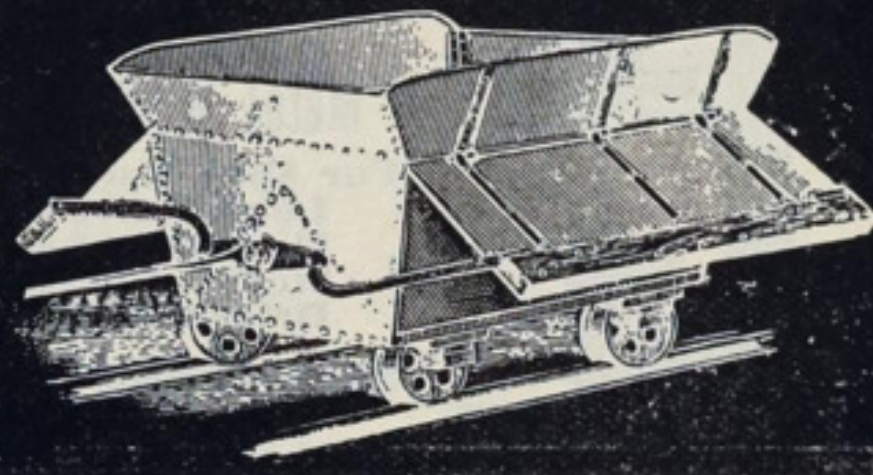
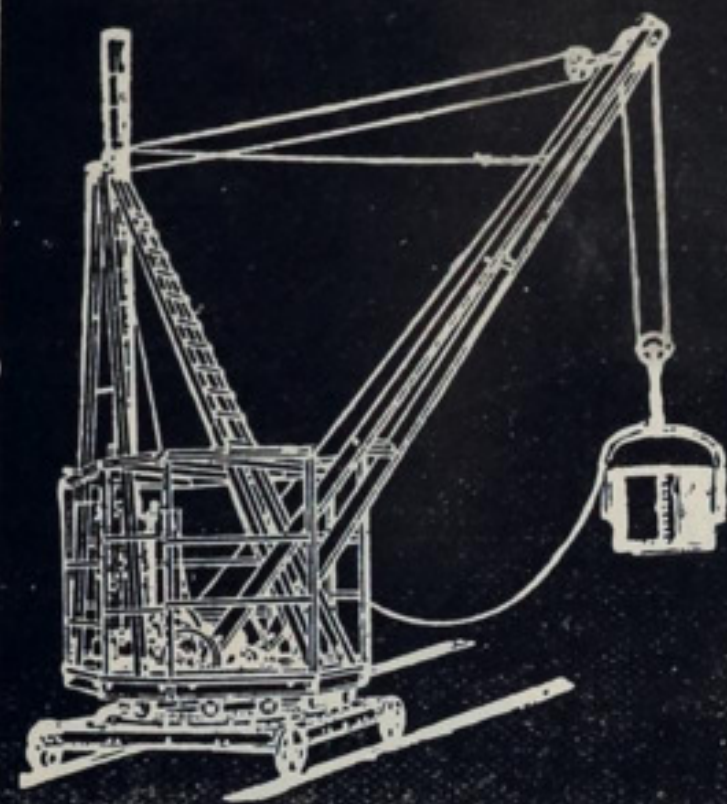
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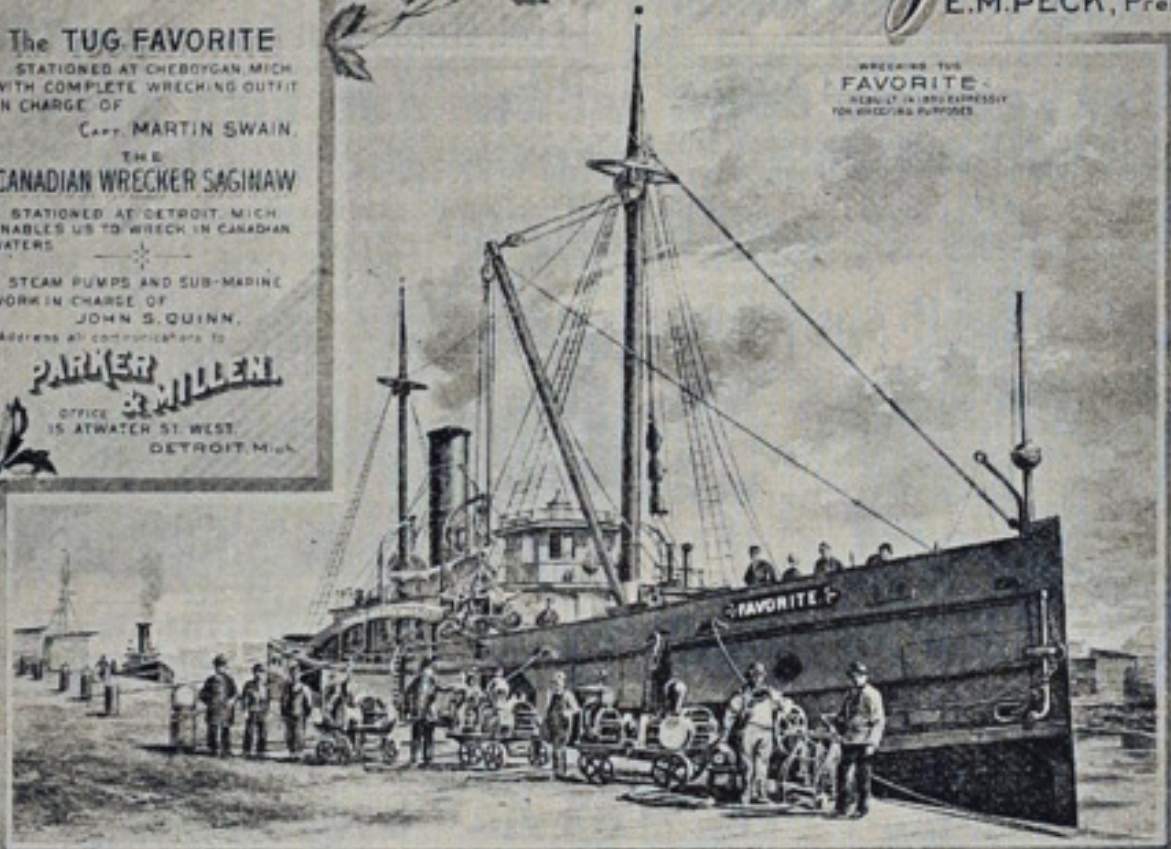
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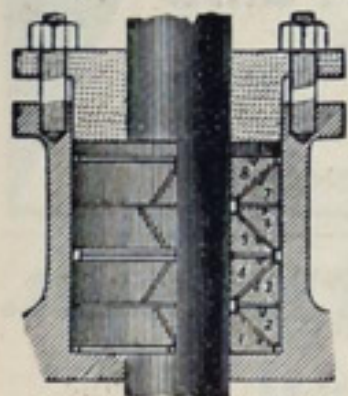
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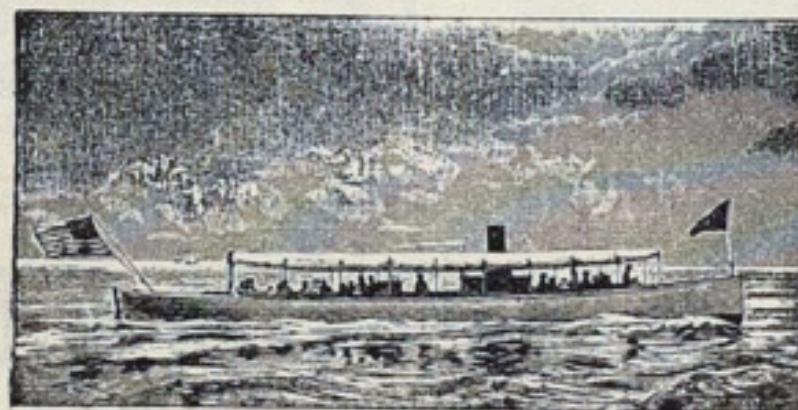
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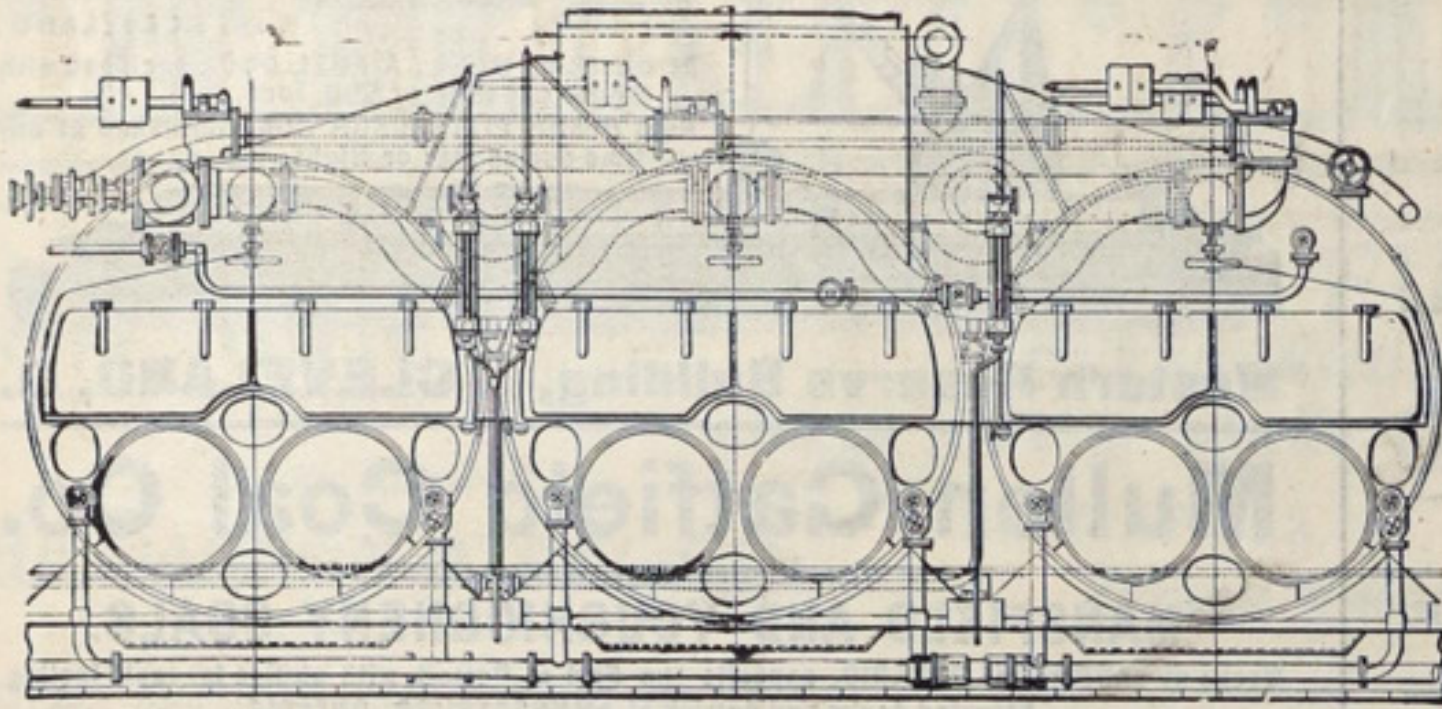
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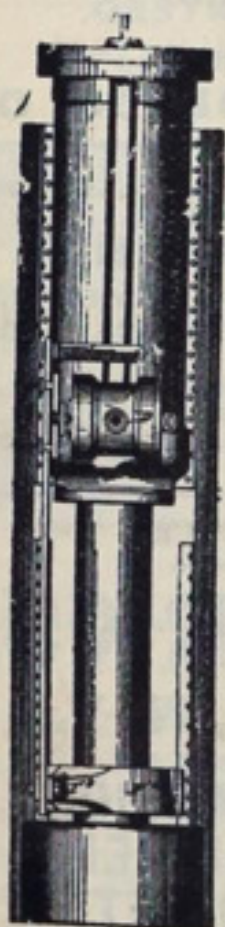
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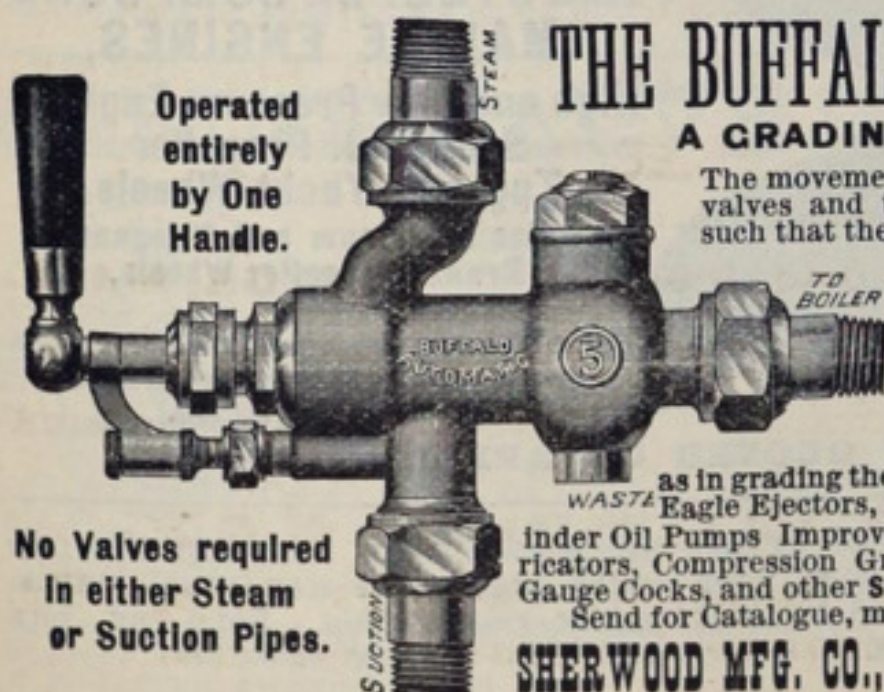
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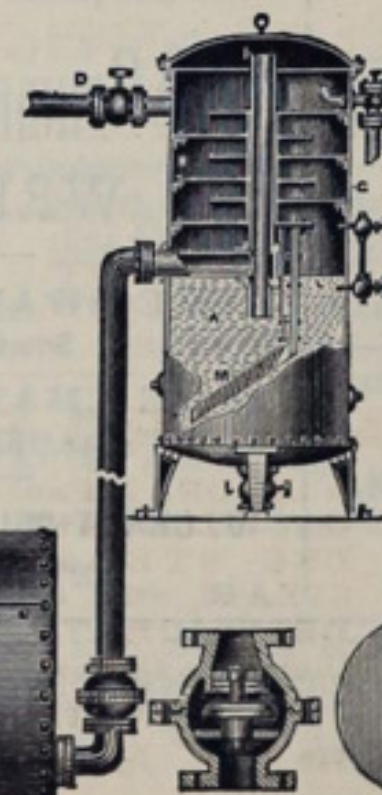
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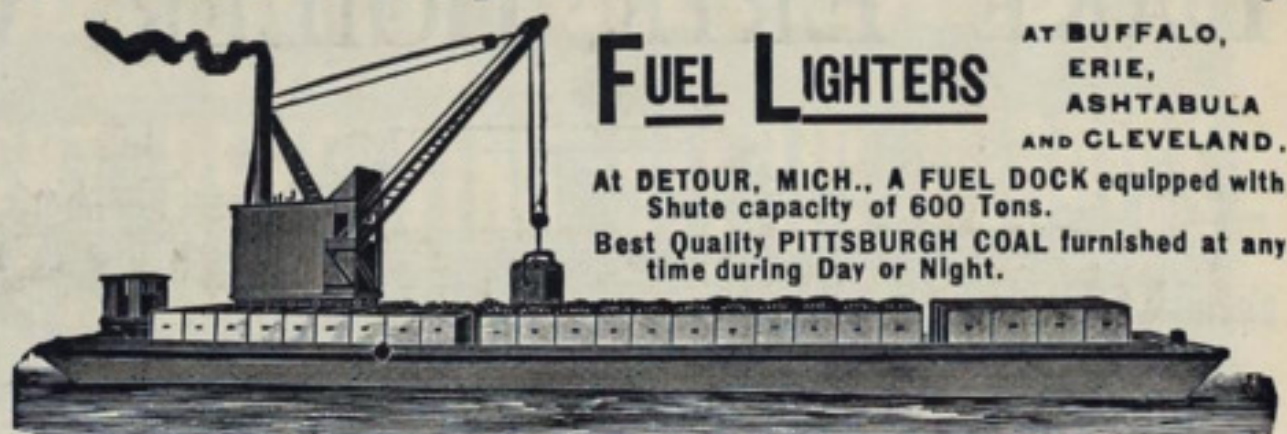
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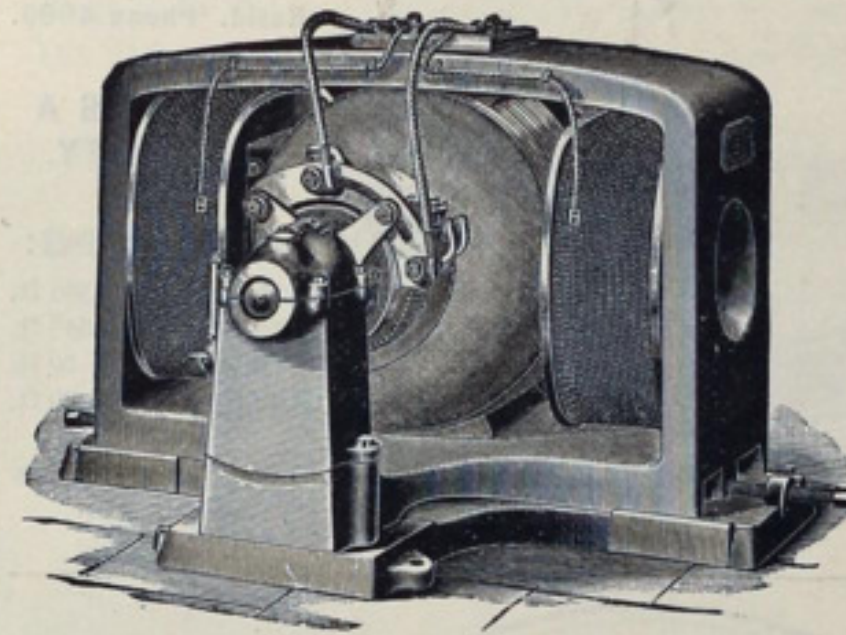
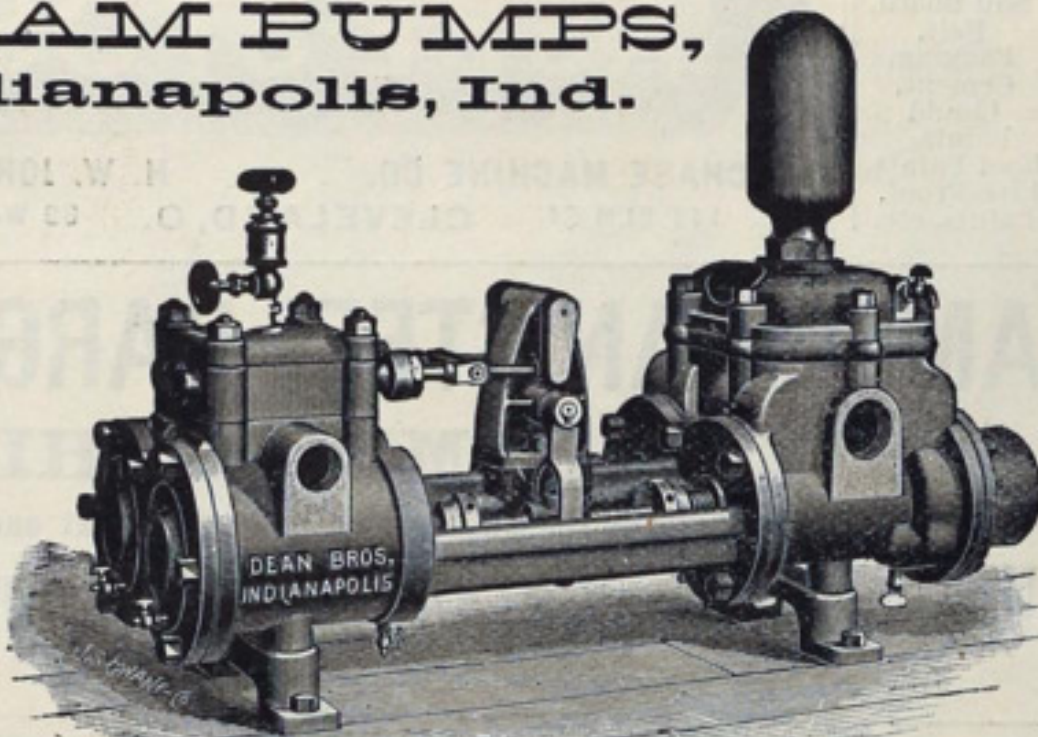
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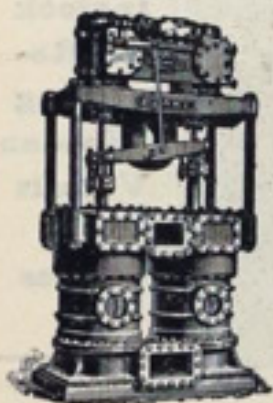
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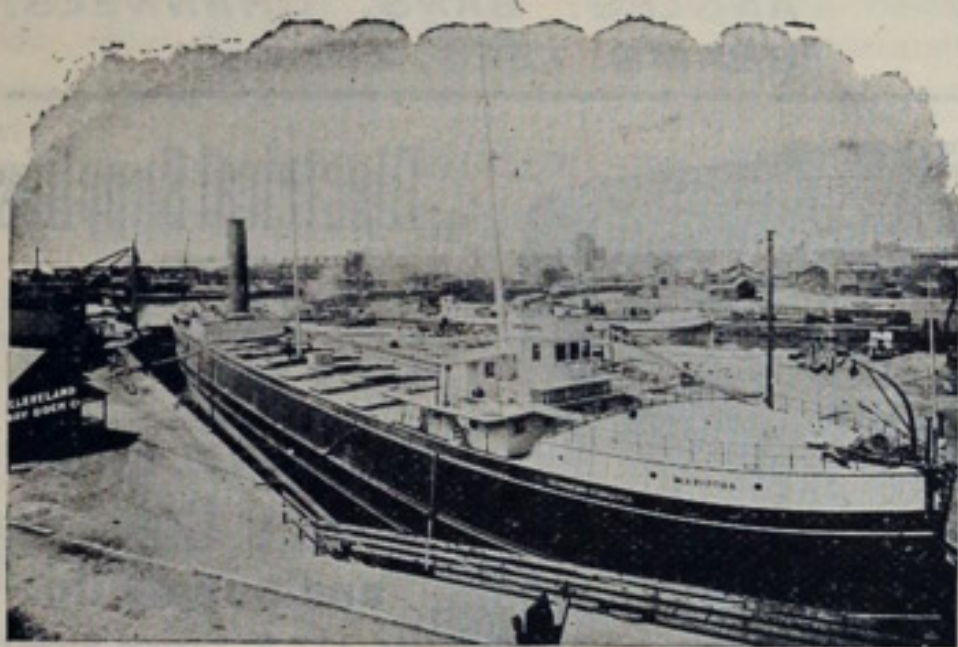
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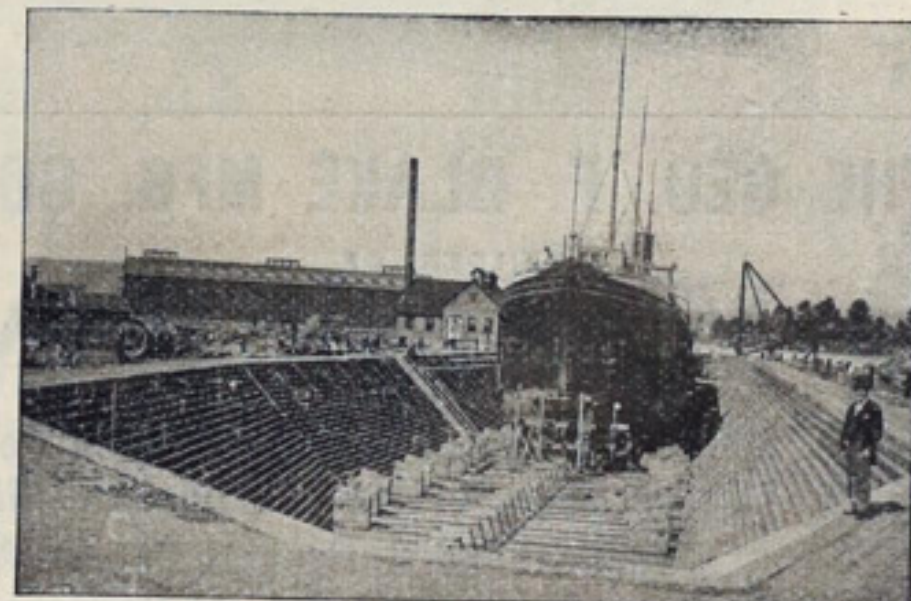
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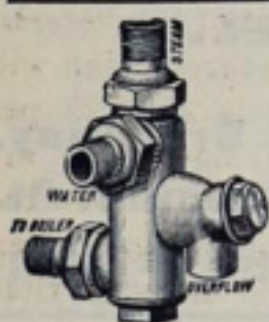
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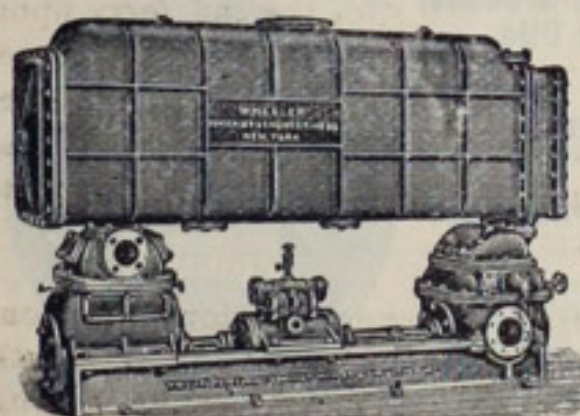
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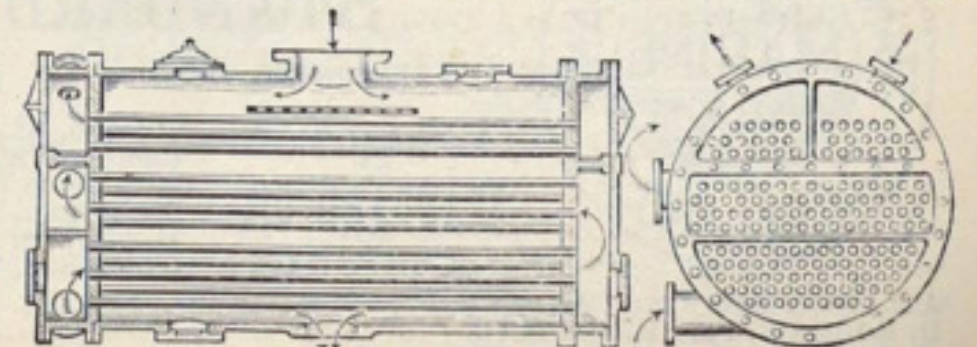
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